



Small Signal Schottky diode

BAT54S2

Description

Planar silicon Schottky barrier diode encapsulated in a SOD-323 very small plastic SMD package.

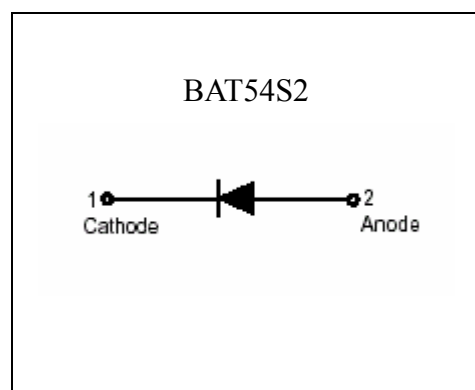
Features

- Guard ring protected
- Low forward voltage drop
- Very small plastic SMD package

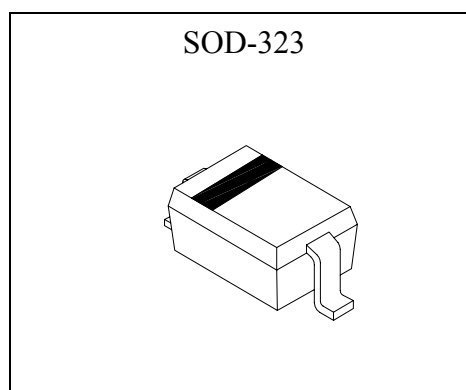
Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes

Symbol



Outline



**Absolute Maximum Ratings**

| Symbol | Parameter | Conditions | Min | Max | Unit |
|-----------|-------------------------------------|--------------------------------|-----|------|------------|
| V_R | continuous reverse voltage | | - | 30 | V |
| I_F | continuous forward current | | - | 200 | mA |
| I_{FRM} | repetitive peak forward current | $t_p \leq 1s, \delta \leq 0.5$ | - | 300 | mA |
| I_{FSM} | non-repetitive peak forward current | $t_p < 10ms$ | - | 600 | mA |
| P_{tot} | total power dissipation | $T_{amb} \leq 25^\circ C$ | - | 200 | mW |
| T_{stg} | storage temperature | | -65 | +150 | $^\circ C$ |
| T_j | junction temperature | | - | 125 | $^\circ C$ |
| T_{amb} | operating ambient temperature | | -65 | +125 | $^\circ C$ |

Characteristics ($T_a = 25^\circ C$, unless otherwise specified)

| Parameter | Symbol | Condition | Min. | Max. | Unit |
|----------------------------------|----------|---|------|------|---------|
| Reverse Breakdown Voltage | V_{BR} | $I_R = 100\mu A$ | 30 | - | V |
| Forward Voltage (Note 1) | $V_F(1)$ | $I_F = 0.1mA$ | - | 240 | mV |
| | $V_F(2)$ | $I_F = 1mA$ | - | 320 | mV |
| | $V_F(3)$ | $I_F = 10mA$ | - | 400 | mV |
| | $V_F(4)$ | $I_F = 30mA$ | - | 500 | mV |
| | $V_F(5)$ | $I_F = 100mA$ | - | 800 | mV |
| Reverse Leakage Current (Note 2) | I_R | $V_R = 25V$ | - | 2 | μA |
| Diode Capacitance | C_D | $V_R = 1V, f = 1MHz$ | - | 10 | pF |
| Reverse Recovery Time | t_{rr} | when switched from $I_F = 10mA$ to $I_R = 10mA$; $R_L = 100\Omega$; measured at $I_R = 1mA$ | - | 5 | ns |

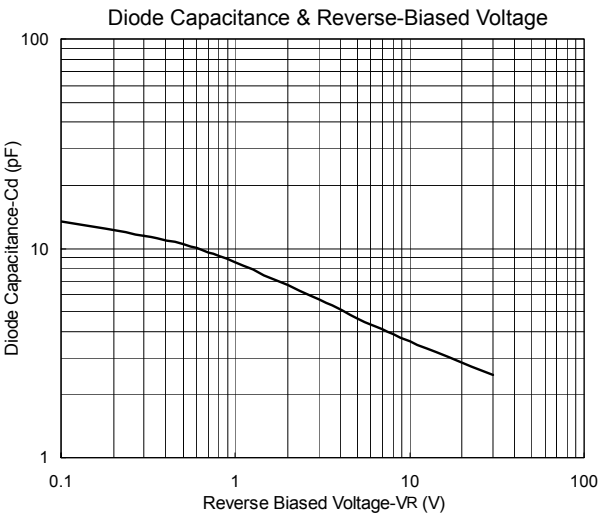
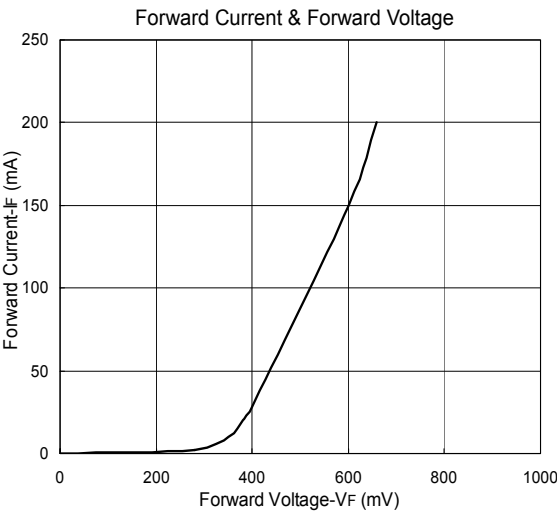
Notes: 1.pulse test, $t_p = 380\mu s$, duty cycle $< 2\%$.2.pulse test, $t_p = 300\mu s$, duty cycle $< 2\%$.**Thermal Characteristics**

| Symbol | Parameter | Conditions | Value | Unit |
|---------------|---|------------|-------|------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1 | 635 | K/W |

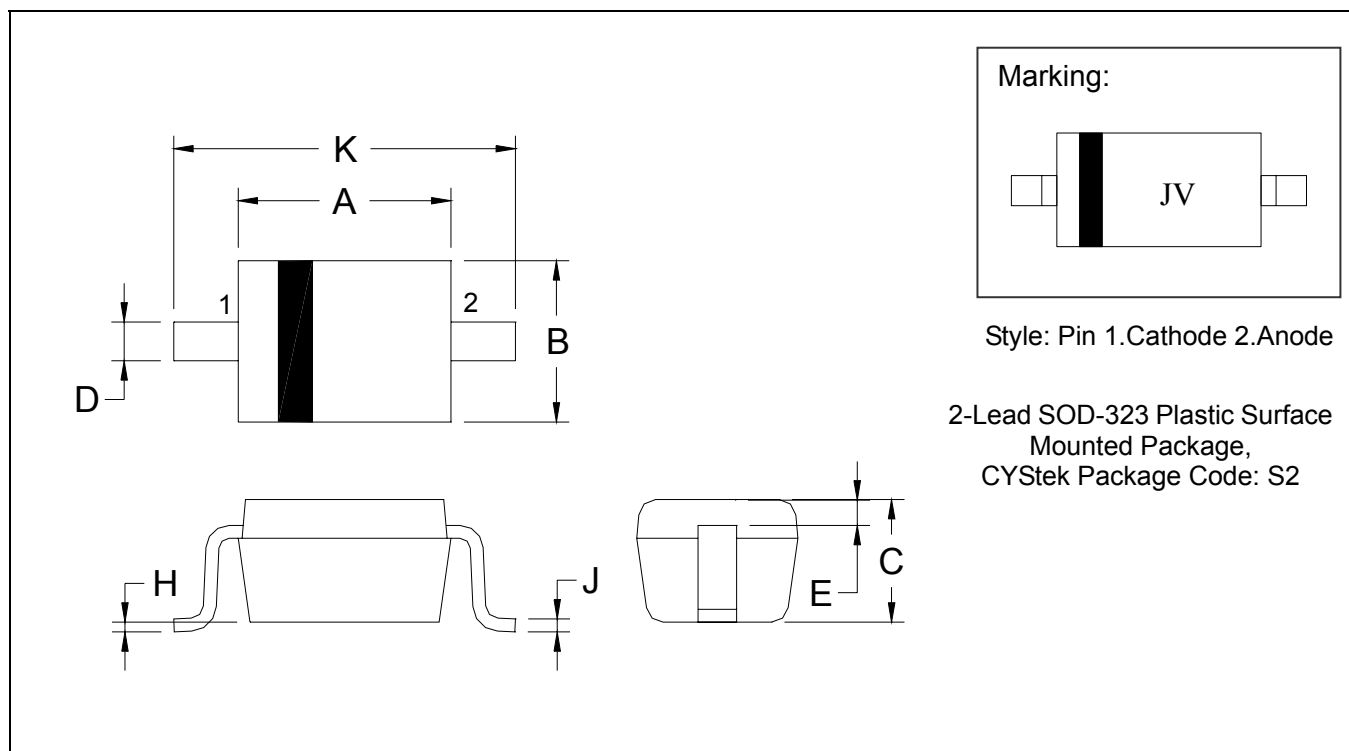
Note 1 : Device mounted on a FR-4 PCB



Characteristic Curves



SOD-323 Dimension



*: Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|--------|--------|-------------|------|-----|------------|--------|-------------|-------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.0630 | 0.0709 | 1.60 | 1.80 | E | 0.0060 REF | | 0.15 REF | |
| B | 0.0453 | 0.0531 | 1.15 | 1.35 | H | 0.0000 | 0.0040 | 0.00 | 0.10 |
| C | 0.0315 | 0.0394 | 0.80 | 1.00 | J | 0.0035 | 0.0070 | 0.089 | 0.177 |
| D | 0.0098 | 0.0157 | 0.25 | 0.40 | K | 0.0906 | 0.1063 | 2.30 | 2.70 |

Notes: 1.Controlling dimension : millimeters.

2.Lead thickness specified per L/F drawing with solder plating.

3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of CYStek.
- CYStek reserves the right to make changes to its products without notice.
- CYStek **semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- CYStek assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.